

IN THE CLAIMS:

1. (Currently Amended) A medical instrument holding apparatus comprising:

a supporting mechanism which has a distal end portion adapted to support ~~supporting~~ a medical instrument and a holding portion adapted for being held by the operator;

a moving mechanism which has at least first and second sides and which supports the supporting mechanism;

a shaft portion ~~located~~ operatively connected to the first side along a longitudinal length of the first side such that ~~between the first and second sides and allowing~~ the medical instrument and the supporting mechanism can ~~to~~ be rotated about the shaft portion;

a basal portion which is coupled to the shaft portion, the basal portion supporting the moving mechanism and allowing the moving mechanism to rotate about the shaft portion;

a ball joint which couples the moving mechanism ~~and~~ to the supporting mechanism via the second side and which is provided in a position shifted from a center of gravity of the holding portion on the supporting mechanism toward the moving mechanism, the ball joint further supporting the supporting mechanism from below the supporting mechanism in the direction of gravity to be pivotable with respect to the moving mechanism; and

a counterweight which is located on the second side of the moving mechanism such that a first rotation moment is smaller than a second rotation moment generated from the weights of the medical instrument and the supporting mechanism, the counterweight acting about the shaft portion in the opposite direction to the second rotation moment.

2. (Original) A medical instrument holding apparatus according to claim 1, wherein the moving mechanism and the supporting mechanism have braking mechanisms capable of being switched between a restrictive state in which the moving and supporting mechanisms are prevented from moving and a permissive state in which the mechanisms are allowed to move, and the supporting mechanism has a switch which is operated by an operator and switches the braking mechanisms to switch the moving and supporting mechanisms between the restrictive state and the permissive state.

3. (Currently Amended) A medical instrument holding apparatus according to claim 2, further comprising the medical instrument, wherein the holding portion is located so that ~~[[the]]~~ a combined center of gravity of the ~~combination of the~~ holding portion and the medical instrument and the center of operation by the operator are situated in different positions on the holding portion; ~~[[the]]~~ a center of inclination of the ball joint around which the holding portion is inclined by means of the ball joint being situated in a position different from the combined center of gravity of the ~~center of gravity of the combination of the~~ holding portion and the medical instrument; and

the supporting mechanism further includes a support arm having one end and the other end, the one end being supported on the moving mechanism, wherein the combined center of gravity is located on a longitudinal axis of the supporting mechanism between the one end and the other end.

4. (Original) A medical instrument holding apparatus according to claim 3, wherein the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm having one end connected to the support arm; a second arm

having one end rotatably connected to the one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the counterweight being located on the other end of the fourth arm.

5. (Original) A medical instrument holding apparatus according to claim 4, wherein the first arm is shorter than the fourth and second arms.

6. (Original) A medical instrument holding apparatus according to claim 5, wherein the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm.

7. (Currently Amended) A medical instrument holding apparatus according to claim 6, comprising:

a medical instrument;

a supporting mechanism which has a distal end portion supporting the medical instrument and a holding portion being held by the operator;

a moving mechanism which has first and second sides and which supports the supporting mechanism;

a shaft portion located between the first and second sides and allowing the medical instrument and the supporting mechanism to be rotated about the shaft portion;

a basal portion which is coupled to the shaft portion, the basal portion

supporting the moving mechanism and allowing the moving mechanism to rotate about the shaft portion;

a ball joint which couples the moving mechanism and the supporting mechanism and which is provided in a position shifted from a center of gravity of the holding portion on the supporting mechanism toward the moving mechanism, the ball joint further supporting the supporting mechanism to be pivotable with respect to the moving mechanism;
and

a counterweight which is located on the second side of the moving mechanism such that a first rotation moment is smaller than a second rotation moment generated from the weights of the medical instrument and the supporting mechanism, the counterweight acting about the shaft portion in the opposite direction to the second rotation moment;

wherein:

the moving mechanism and the supporting mechanism have braking mechanisms capable of being switched between a restrictive state in which the moving and supporting mechanisms are prevented from moving and a permissive state in which the mechanisms are allowed to move, and the supporting mechanism has a switch which is operated by an operator and switches the braking mechanisms to switch the moving and supporting mechanisms between the restrictive state and the permissive state;

the holding portion is located so that a combined center of gravity of the holding portion and the medical instrument and the center of operation by the operator are situated in different positions on the holding portion; a center of inclination of the ball joint around which the holding portion is inclined by means of the ball joint being situated in a position different from the combined center of gravity of the holding portion and the medical

instrument and the supporting mechanism further includes a support arm having one end and the other end, the one end being supported on the moving mechanism;

the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm having one end connected to the support arm; a second arm having one end rotatably connected to the one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the counterweight being located on the other end of the fourth arm;

the first arm is shorter than the fourth and second arms;

the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm; and

wherein the ball joint includes a detecting mechanism which detects the angle of inclination of the holding portion to the moving mechanism, and the adjusting mechanism includes an arithmetic mechanism which calculates the variation of the rotation moment around the shaft portion, based on the angle of inclination of the holding portion detected by means of the detecting mechanism, and a barycenter position adjusting mechanism which moves the counterweight along the axis of the fourth arm, thereby adjusting the position of the center of gravity of the counterweight, in accordance with the result of computation by the arithmetic mechanism.

8. (Original) A medical instrument holding apparatus according to claim 4, wherein the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm.

9. (Currently Amended) A medical instrument holding apparatus ~~according to claim 8, comprising:~~

a medical instrument;

a supporting mechanism which has a distal end portion supporting the medical instrument and a holding portion being held by the operator;

a moving mechanism which has first and second sides and which supports the supporting mechanism;

a shaft portion located between the first and second sides and allowing the medical instrument and the supporting mechanism to be rotated about the shaft portion;

a basal portion which is coupled to the shaft portion, the basal portion supporting the moving mechanism and allowing the moving mechanism to rotate about the shaft portion;

a ball joint which couples the moving mechanism and the supporting mechanism and which is provided in a position shifted from a center of gravity of the holding portion on the supporting mechanism toward the moving mechanism, the ball joint further supporting the supporting mechanism to be pivotable with respect to the moving mechanism;
and

a counterweight which is located on the second side of the moving mechanism such that a first rotation moment is smaller than a second rotation moment generated from the

weights of the medical instrument and the supporting mechanism, the counterweight acting about the shaft portion in the opposite direction to the second rotation moment;

wherein:

the moving mechanism and the supporting mechanism have braking mechanisms capable of being switched between a restrictive state in which the moving and supporting mechanisms are prevented from moving and a permissive state in which the mechanisms are allowed to move, and the supporting mechanism has a switch which is operated by an operator and switches the braking mechanisms to switch the moving and supporting mechanisms between the restrictive state and the permissive state;

the holding portion is located so that a combined center of gravity of the holding portion and the medical instrument and the center of operation by the operator are situated in different positions on the holding portion; a center of inclination of the ball joint around which the holding portion is inclined by means of the ball joint being situated in a position different from the combined center of gravity of the holding portion and the medical instrument and the supporting mechanism further includes a support arm having one end and the other end, the one end being supported on the moving mechanism;

the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm having one end connected to the support arm; a second arm having one end rotatably connected to the one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to

the third arm so as to be parallel to the first arm, the counterweight being located on the other end of the fourth arm;

the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm; and

~~wherein~~ the ball joint includes a detecting mechanism which detects the angle of inclination of the holding portion to the moving mechanism, and the adjusting mechanism includes an arithmetic mechanism which calculates the variation of the rotation moment around the shaft portion, based on the angle of inclination of the holding portion detected by means of the detecting mechanism, and a barycenter position adjusting mechanism which moves the counterweight along the axis of the fourth arm, thereby adjusting the position of the center of gravity of the counterweight, in accordance with the result of computation by the arithmetic mechanism.

10. (Original) A medical instrument holding apparatus according to claim 2, wherein the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm supported on the supporting mechanism; a second arm having one end rotatably connected to one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the fourth arm having the counterweight on the other end thereof.

11. (Original) A medical instrument holding apparatus according to claim 10, wherein the first arm is shorter than the fourth and second arms.

12. (Original) A medical instrument holding apparatus according to claim 11, wherein the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm.

13. (Currently Amended) A medical instrument holding apparatus ~~according to~~ claim 12, comprising:

a supporting mechanism which has a distal end portion supporting a medical instrument and a holding portion being held by the operator;

a moving mechanism which has first and second sides and which supports the supporting mechanism;

a shaft portion located between the first and second sides and allowing the medical instrument and the supporting mechanism to be rotated about the shaft portion;

a basal portion which is coupled to the shaft portion, the basal portion supporting the moving mechanism and allowing the moving mechanism to rotate about the shaft portion;

a ball joint which couples the moving mechanism and the supporting mechanism and which is provided in a position shifted from a center of gravity of the holding portion on the supporting mechanism toward the moving mechanism, the ball joint further supporting the supporting mechanism to be pivotable with respect to the moving mechanism;
and

a counterweight which is located on the second side of the moving mechanism

such that a first rotation moment is smaller than a second rotation moment generated from the weights of the medical instrument and the supporting mechanism, the counterweight acting about the shaft portion in the opposite direction to the second rotation moment;

wherein:

the moving mechanism and the supporting mechanism have braking mechanisms capable of being switched between a restrictive state in which the moving and supporting mechanisms are prevented from moving and a permissive state in which the mechanisms are allowed to move, and the supporting mechanism has a switch which is operated by an operator and switches the braking mechanisms to switch the moving and supporting mechanisms between the restrictive state and the permissive state;

the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm supported on the supporting mechanism; a second arm having one end rotatably connected to one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the fourth arm having the counterweight on the other end thereof;

the first arm is shorter than the fourth and second arms;

the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm; and

wherein the ball joint includes a detecting mechanism which detects the angle

of inclination of the holding portion to the moving mechanism, and the adjusting mechanism includes an arithmetic mechanism which calculates the variation of the rotation moment around the shaft portion, based on the angle of inclination of the holding portion detected by means of the detecting mechanism, and a barycenter position adjusting mechanism which moves the counterweight along the axis of the fourth arm, thereby adjusting the position of the center of gravity of the counterweight, in accordance with the result of computation by the arithmetic mechanism.

14. (Original) A medical instrument holding apparatus according to claim 10, wherein the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm.

15. (Currently Amended) A medical instrument holding apparatus ~~according to claim 14,~~ comprising:

a supporting mechanism which has a distal end portion supporting a medical instrument and a holding portion being held by the operator;

a moving mechanism which has first and second sides and which supports the supporting mechanism;

a shaft portion located between the first and second sides and allowing the medical instrument and the supporting mechanism to be rotated about the shaft portion;

a basal portion which is coupled to the shaft portion, the basal portion supporting the moving mechanism and allowing the moving mechanism to rotate about the shaft portion;

a ball joint which couples the moving mechanism and the supporting

mechanism and which is provided in a position shifted from a center of gravity of the holding portion on the supporting mechanism toward the moving mechanism, the ball joint further supporting the supporting mechanism to be pivotable with respect to the moving mechanism; and

a counterweight which is located on the second side of the moving mechanism such that a first rotation moment is smaller than a second rotation moment generated from the weights of the medical instrument and the supporting mechanism, the counterweight acting about the shaft portion in the opposite direction to the second rotation moment;

wherein:

the moving mechanism and the supporting mechanism have braking mechanisms capable of being switched between a restrictive state in which the moving and supporting mechanisms are prevented from moving and a permissive state in which the mechanisms are allowed to move, and the supporting mechanism has a switch which is operated by an operator and switches the braking mechanisms to switch the moving and supporting mechanisms between the restrictive state and the permissive state;

the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm supported on the supporting mechanism; a second arm having one end rotatably connected to one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third

arm so as to be parallel to the first arm, the fourth arm having the counterweight on the other end thereof;

the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm; and

~~wherein~~ the ball joint includes a detecting mechanism which detects the angle of inclination of the holding portion to the moving mechanism, and the adjusting mechanism includes an arithmetic mechanism which calculates the variation of the rotation moment around the shaft portion, based on the angle of inclination of the holding portion detected by means of the detecting mechanism, and a barycenter position adjusting mechanism which moves the counterweight along the axis of the fourth arm, thereby adjusting the position of the center of gravity of the counterweight, in accordance with the result of computation by the arithmetic mechanism.

16. (Currently Amended) A medical instrument holding apparatus according to claim 1, further comprising the medical instrument, wherein the holding portion is located so that ~~[[the]] a combined center of gravity of the combination~~ of the holding portion and the medical instrument and the center of operation by the operator are situated in different positions; ~~[[the]] a center of inclination of the ball joint around which the holding portion is~~ inclined by means of the ball joint being situated in a position different from the center of gravity of a heavy structure including the holding portion and the medical instrument; and the supporting mechanism further includes a support arm having one end and the other end, the one end being supported on the moving mechanism and the other end supporting the ball joint.

17. (Original) A medical instrument holding apparatus according to claim 16, wherein the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm having one end connected to the support arm; a second arm having one end rotatably connected to the one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the counterweight being located on the other end of the fourth arm.

18. (Original) A medical instrument holding apparatus according to claim 17, wherein the first arm is shorter than the fourth and second arms.

19. (Original) A medical instrument holding apparatus according to claim 18, wherein the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm.

20. (Currently Amended) A medical instrument holding apparatus according to claim 19, comprising:

a medical instrument;

a supporting mechanism which has a distal end portion supporting the medical instrument and a holding portion being held by the operator;

a moving mechanism which has first and second sides and which supports the supporting mechanism;

a shaft portion located between the first and second sides and allowing the medical instrument and the supporting mechanism to be rotated about the shaft portion;

a basal portion which is coupled to the shaft portion, the basal portion supporting the moving mechanism and allowing the moving mechanism to rotate about the shaft portion;

a ball joint which couples the moving mechanism and the supporting mechanism and which is provided in a position shifted from a center of gravity of the holding portion on the supporting mechanism toward the moving mechanism, the ball joint further supporting the supporting mechanism to be pivotable with respect to the moving mechanism;
and

a counterweight which is located on the second side of the moving mechanism such that a first rotation moment is smaller than a second rotation moment generated from the weights of the medical instrument and the supporting mechanism, the counterweight acting about the shaft portion in the opposite direction to the second rotation moment;

wherein:

the holding portion is located so that a combined center of gravity of the holding portion and the medical instrument and the center of operation by the operator are situated in different positions; a center of inclination of the ball joint around which the holding portion is inclined by means of the ball joint being situated in a position different from the center of gravity of a heavy structure including the holding portion and the medical instrument and the supporting mechanism further includes a support arm having one end and the other end, the one end being supported on the moving mechanism and the other end supporting the ball joint;

the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm having one end connected to the support arm; a second arm having one end rotatably connected to the one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the counterweight being located on the other end of the fourth arm;

the first arm is shorter than the fourth and second arms;

the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm; and

~~wherein~~ the ball joint includes a detecting mechanism which detects the angle of inclination of the holding portion to the moving mechanism, and the adjusting mechanism includes an arithmetic mechanism which calculates the variation of the rotation moment around the shaft portion, based on the angle of inclination of the holding portion detected by means of the detecting mechanism, and a barycenter position adjusting mechanism which moves the counterweight along the axis of the fourth arm, thereby adjusting the position of the center of gravity of the counterweight, in accordance with the result of computation by the arithmetic mechanism.

21. (Original) A medical instrument holding apparatus according to claim 17, wherein the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm.

22. (Currently Amended) A medical instrument holding apparatus ~~according to~~ ~~claim 21, comprising:~~

a medical instrument;

a supporting mechanism which has a distal end portion supporting the medical instrument and a holding portion being held by the operator;

a moving mechanism which has first and second sides and which supports the supporting mechanism;

a shaft portion located between the first and second sides and allowing the medical instrument and the supporting mechanism to be rotated about the shaft portion;

a basal portion which is coupled to the shaft portion, the basal portion supporting the moving mechanism and allowing the moving mechanism to rotate about the shaft portion;

a ball joint which couples the moving mechanism and the supporting mechanism and which is provided in a position shifted from a center of gravity of the holding portion on the supporting mechanism toward the moving mechanism, the ball joint further supporting the supporting mechanism to be pivotable with respect to the moving mechanism;
and

a counterweight which is located on the second side of the moving mechanism such that a first rotation moment is smaller than a second rotation moment generated from the

weights of the medical instrument and the supporting mechanism, the counterweight acting about the shaft portion in the opposite direction to the second rotation moment;

wherein:

the holding portion is located so that a combined center of gravity of the holding portion and the medical instrument and the center of operation by the operator are situated in different positions; a center of inclination of the ball joint around which the holding portion is inclined by means of the ball joint being situated in a position different from the center of gravity of a heavy structure including the holding portion and the medical instrument and the supporting mechanism further includes a support arm having one end and the other end, the one end being supported on the moving mechanism and the other end supporting the ball joint;

the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm having one end connected to the support arm; a second arm having one end rotatably connected to the one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the counterweight being located on the other end of the fourth arm;

the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm; and

wherein the ball joint includes a detecting mechanism which detects the angle

of inclination of the holding portion to the moving mechanism, and the adjusting mechanism includes an arithmetic mechanism which calculates the variation of the rotation moment around the shaft portion, based on the angle of inclination of the holding portion detected by means of the detecting mechanism, and a barycenter position adjusting mechanism which moves the counterweight along the axis of the fourth arm, thereby adjusting the position of the center of gravity of the counterweight, in accordance with the result of computation by the arithmetic mechanism.

23. (Original) A medical instrument holding apparatus according to claim 1, wherein the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm supported on the supporting mechanism; a second arm having one end rotatably connected to one end of the first arm, the second arm being provided with the shaft portion, which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion, and coupled to the basal portion by means of the shaft portion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the fourth arm having the counterweight on the other end thereof.

24. (Original) A medical instrument holding apparatus according to claim 23, wherein the first arm is shorter than the fourth and second arms.

25. (Original) A medical instrument holding apparatus according to claim 24, wherein the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm.

26. (Currently Amended) A medical instrument holding apparatus ~~according to~~
~~claim 25, comprising:~~

a supporting mechanism which has a distal end portion supporting a medical instrument and a holding portion being held by the operator;

a moving mechanism which has first and second sides and which supports the supporting mechanism;

a shaft portion located between the first and second sides and allowing the medical instrument and the supporting mechanism to be rotated about the shaft portion;

a basal portion which is coupled to the shaft portion, the basal portion supporting the moving mechanism and allowing the moving mechanism to rotate about the shaft portion;

a ball joint which couples the moving mechanism and the supporting mechanism and which is provided in a position shifted from a center of gravity of the holding portion on the supporting mechanism toward the moving mechanism, the ball joint further supporting the supporting mechanism to be pivotable with respect to the moving mechanism;
and

a counterweight which is located on the second side of the moving mechanism such that a first rotation moment is smaller than a second rotation moment generated from the weights of the medical instrument and the supporting mechanism, the counterweight acting about the shaft portion in the opposite direction to the second rotation moment;

wherein:

the moving mechanism has a parallelogrammatic link mechanism, the link mechanism including: a first arm supported on the supporting mechanism; a second arm

having one end rotatably connected to one end of the first arm, the second arm being provided with the shaft portion, which is located between the one and the other ends of the second arm and supports the whole moving mechanism for rotating motion, and coupled to the basal portion by means of the shaft portion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the fourth arm having the counterweight on the other end thereof;

the first arm is shorter than the fourth and second arms;

the counterweight has an adjusting mechanism which adjusts the position of the center of gravity of the counterweight along the axis of the fourth arm; and

~~wherein~~ the ball joint includes a detecting mechanism which detects the angle of inclination of the holding portion to the moving mechanism, and the adjusting mechanism includes an arithmetic mechanism which calculates the variation of the rotation moment around the shaft portion, based on the angle of inclination of the holding portion detected by means of the detecting mechanism, and a barycenter position adjusting mechanism which moves the counterweight along the axis of the fourth arm, thereby adjusting the position of the center of gravity of the counterweight, in accordance with the result of computation by the arithmetic mechanism.

27. (Currently Amended) A medical instrument holding apparatus comprising:
a basal portion having one end portion and an other end portion, the one end portion being fixed and having a shaft portion on the other end portion;
a rotating member having one end portion and an other end portion, the shaft

portion being ~~located~~ operatively coupled to the rotating member between the one and the other end portions of the rotating member;

a supporting mechanism which is ~~located on~~ operatively coupled to the one end portion of the rotating member and has a distal end portion supporting a medical instrument and a holding portion being held by the operator;

a ball joint which couples the ~~moving mechanism~~ rotating member and the supporting mechanism and which is provided in a position shifted from a center of gravity of the holding portion on the supporting mechanism toward the ~~moving mechanism~~ rotating member, the ball joint further supporting the supporting mechanism from below the supporting mechanism in the direction of gravity to be pivotable with respect to the ~~moving mechanism~~ rotating member; and

a counterweight which is ~~located on~~ operatively coupled to the other end portion of the rotating member and having at least one of a weight and position such that the counterweight generates a rotation moment lower than and opposite to a rotation moment around the shaft portion caused by the sum of the respective weights of the medical instrument and the supporting mechanism.

28. (Currently Amended) A medical instrument holding apparatus according to claim 27, further comprising the medical instrument, wherein the holding portion is located so that ~~[[the]]~~ a combined center of gravity of the combination of the holding portion and the medical instrument and the center of operation by the operator are situated in different positions; ~~[[the]]~~ a center of inclination of the ball joint around which the holding portion is

inclined by means of the ball joint being situated in a position different from the combined center of gravity of the combination of the holding portion and the medical instrument; and the supporting mechanism further includes a support arm having one end and the other end, the one end being supported on the moving mechanism and the other end supporting the ball joint, wherein the combined center of gravity is located on a longitudinal axis of the supporting mechanism between the one end and the other end.

29. (Original) A medical instrument holding apparatus according to claim 28, wherein the rotating member has a parallelogrammatic link mechanism, the link mechanism including: a first arm having one end connected to the one end of the support arm; a second arm having one end rotatably connected to the one end of the first arm, the second arm being provided with the shaft portion which is located between the one and the other ends of the second arm and supports the whole rotating member for rotating motion; a third arm kept parallel to the second arm and having one end connected to the other end of the first arm; and a fourth arm having one end connected to the other end of the second arm and connected to the third arm so as to be parallel to the first arm, the fourth arm having the counterweight located on the other end of therefore.

30. (Currently Amended) A medical instrument holding apparatus comprising: supporting means which has a distal end portion supporting a medical instrument and a holding means being held by the operator; moving means which supports the supporting means, the moving means having one side and an other side and allowing the supporting means to move at the one side;

a shaft portion operatively connected to the moving means for rotating the supporting means, thereby moving the medical instrument;

a basal portion which is coupled to the shaft portion and supports the moving means, allowing the moving means to rotate around the shaft portion;

a ball joint which couples the moving means and the supporting means and which is provided in a position shifted from a center of gravity of the holding means on the supporting means toward the moving means and supports, the ball joint further supporting the supporting means from below the supporting means in the direction of gravity to be pivotable with respect to the moving means; and

a counterweight which is located on the other side of the moving means such that the counterweight generates a rotation moment smaller than and opposite to a rotation moment around the shaft portion caused by the respective weights of the medical instrument and the supporting means.

31. (Currently Amended) A medical instrument holding apparatus according to claim 30, further comprising a medical instrument, wherein the holding means is located so that ~~[[the]]~~ a combined center of gravity of the ~~combination of the~~ holding means and the medical instrument and the center of operation by the operator are situated in different positions on the holding means; and

the supporting means further includes a tilting mechanism which supports the holding means so as to be inclinable, ~~[[the]]~~ a center of inclination of the tilting mechanism around which the holding means is inclined by means of the tilting mechanism being situated in a position different from the combined center of gravity of the combination of the holding

means and the medical instrument; and a support arm having one end and the other end, the one end being supported on the moving means and the other end supporting the tilting mechanism, wherein the combined center of gravity is located on a longitudinal axis of the supporting means between the one end and the other end.

32. (Previously Presented) A medical instrument holding apparatus according to claim 1,

wherein the ball joint includes a braking mechanism which is configured to switch between a state of restriction to regulate a movement of the moving mechanism and the supporting mechanism and a state of permission to permit the movement; and

the holding portion includes a switch which is configured to switch the braking mechanism between the state of restriction and the state of permission.

33. (Previously Presented) A medical instrument holding apparatus according to claim 1, wherein the medical instrument includes an optical system which observes an object.

34. (Previously Presented) A medical instrument holding apparatus according to claim 33, wherein the optical system includes an imaging system.

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